

5    **IN THE CLAIMS**

1.        (Amended)    A translation system for translating a source assembly language program for a source device into a translation assembly language program for a target device, the system comprising:
- 10            a front end for identifying source elements in the source program; and  
             a back end for generating the translation program having translation elements corresponding to translation of the identified source elements, the backend including a graphic user interface, the graphic user interface displaying the identified source elements aligned with the corresponding translation elements, display processor having an input unit, the input unit
- 15        permitting a user to modify the translation elements based on comparison with the aligned source elements.
2.        The system as recited in claim 1, wherein the source program is for a source device and the translation program is for a disparate target device.
- 20        3.        The system as recited in claim 1, wherein the source program is a linear assembly file for a target device and the translation program is a scheduled assembly file for that device.
6.        The system as recited in claim 1, wherein the translation is a context-dependent
- 25        translation based on static analysis of the source program.
7.        The system as recited in claim 1, wherein the back end further comprises:  
             a translator for performing a context-dependent translation, the translator comprising:  
             a translation machine description for mapping source opcodes to target opcodes;
- 30            a source machine description containing a description of source opcodes and source operands in a generic representation;  
             a target machine description containing a description of target opcodes and target operands in a generic representation; and  
             wherein the translator receives a source instruction from said front end, utilizes the
- 35        translation machine description and source machine description and target machine description to translate source elements into target elements.

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8. The system as recited in claim 7, wherein the proper target opcode is chosen from a group of potential target opcodes by comparing the target opcode and target operand with the source opcode and source operand.

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9. The system as recited in claim 7, wherein two or more source opcodes can be combined to a single target opcode when there is a target opcode that represents the two or more source code opcodes.

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10. (Amended) The system as recited in claim 1 wherein the graphic user interface is a display processor.

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11. The system as recited in claim 10, wherein the graphical user interface displays at least a portion of the source elements in a source window, at least a portion of the translation elements in a translation window, and the source and translation windows are displayed side-by-side.

12. The system as recited in claim 11, wherein corresponding groups of elements of the source and translation programs are aligned in the source and translation windows.

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13. The system as recited in claim 11, wherein at least one of the source and translation windows is operable to display a status icon for an element in the window.

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14. (Amended) A method for performing translation of an assembly language source program into an assembly language translation program, the method comprising:  
receiving the source program;  
identifying source elements in the source program;  
generating the translation program having translation elements by performing a context-dependent translation of the source elements;  
displaying the translation elements in a graphic user interface for receiving user inputs,  
the graphic user interface aligning the source element and the translation element, the aligned elements permitting a comparison of related source elements and translation elements; and

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5 in response to user inputs, automatically regenerating selected translation elements based on the comparison.

15. The method as recited in claim 14, wherein the source program is for a source device and the translation program is for a disparate target device.

10 16. The method as recited in claim 14, wherein the source program is a linear assembly program for a target device and the translation program is a scheduled assembly program for the target device.

15 19. The method as recited in claim 14, further comprising:  
performing static analysis of the source elements in the source program; and  
performing context-dependent translation of the source elements based on the static analysis.

20 20. The method as recited in claim 14, wherein the step of generating a translation program further comprises:  
converting an opcode of a source machine to an opcode of a translation machine program by comparing the source opcode to possible translation opcodes;  
converting the operand of the source opcode by comparing an operand of the source  
25 opcode in a generic expression with a generic expression for a translation operand;  
combining the translation opcode and the translation operand to form a translation.

21. The method as recited in claim 20, wherein the step of converting an opcode of the source file further comprises choosing a translation opcode from a group of potential  
30 translation opcodes by comparing the translation opcode and translation operand with the related source opcode and source operand.

22. The method as recited in claim 20, wherein the step of converting the source opcode further comprises the step of combining two or more source opcodes into a single  
35 translation opcode when there is a translation opcode that represents the two or more source opcodes.

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23. The method as recited in claim 14, wherein the user interface is a graphical user interface.

24. The method as recited in claim 23, further comprising:  
10 displaying the source elements in a source window;  
displaying the translation elements in a translation window; and  
displaying the source and translation windows side-by-side in the graphical user interface.

15 25. The method as recited in claim 24, further comprising aligning corresponding groups of elements of the source and translation program in the source and translation windows.

26. The method as recited in claim 24, further comprising displaying a status icon for an element in at least one of the source and translation windows.

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27. (Amended) A translation system for translating a source program into a translation program, the system comprising:  
a computer capable of executing a program,  
an interactive program for translating code for a first processor into code for a second  
25 processor and capable of being executed on said computer, and  
a graphics interface system displaying source program elements proximate corresponding translation program elements, the graphics interface system permitting the comparison of corresponding source program elements and translation program elements, the graphic interface unit having a user input device, the user input permitting correction of the translation program  
30 elements by a user based on the comparison.

#### REMARKS

Claims 1-3, 6-16 and 19-27 have been presented for examination in the parent U.S.  
35 Patent Application.